

Accessing the private instances from public one

```
ubuntu@ip-10-0-0-148:~$ sudo chmod 400 lab2.pem
ubuntu@ip-10-0-0-148:~$ ssh -i "lab2.pem" ubuntu@10.0.1.38
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Jun  8 18:49:23 UTC 2023

System load:  0.0                               Processes:           96
Usage of /:   8.1% of 19.20GB                     Users logged in:    0
Memory usage: 23%                                IPv4 address for eth0: 10.0.1.38
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

VPC configuration

Subnets (4) [Info](#)

VPC: vpc-0c10190a1393214a9

Clear filters

Name

Subnet ID

State

VPC

IPv4 CIDR

IPv6 CIDR

private2

subnet-0dd34cb433918b796

Available

vpc-0c10190a1393214a9 | spr...

10.0.3.0/24

-

private1

subnet-0698643c60f081a69

Available

vpc-0c10190a1393214a9 | spr...

10.0.1.0/24

-

public2

subnet-03e9cf5c933d34407

Available

vpc-0c10190a1393214a9 | spr...

10.0.2.0/24

-

public1

subnet-0b1bc8c913c65b0f3

Available

vpc-0c10190a1393214a9 | spr...

10.0.0.0/24

-

Route tables (3) [Info](#)

VPC = vpc-0c10190a1393214a9

Clear filters

Name

Route table ID

Explicit subnet associati...

Edge associations

Main

VPC

sprint_rt

rtb-02b90a2688b18181f

2 subnets

-

No

vpc-0c10190a1393214a9 |

nat_rt

rtb-0bd1d163cc2a4ed5e

2 subnets

-

No

vpc-0c10190a1393214a9 |

-

rtb-0eb03e4a1272ca375

-

-

Yes

vpc-0c10190a1393214a9 |

Working instances

Instances (4) Info									
<div><div><div><div></div><div>Find instance by attribute or tag (case-sensitive)</div></div></div><div><div>Refresh</div><div>Connect</div><div>Instance state</div><div>Actions</div><div>Launch instances</div></div></div>									
<div><div>< 1 ></div><div>Settings</div></div>									
<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 I	
<input type="checkbox"/>	web	i-00784a9472fc861d5	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	-	
<input type="checkbox"/>	nginx2	i-0fd81ad7dddf5c0e	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	-	
<input type="checkbox"/>	web2	i-0e0db527e49eaac49	Running	t2.micro	2/2 checks passed	No alarms	us-east-1d	-	
<input type="checkbox"/>	nginx	i-0ead9a65f46a7de81	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-	

I configured one nginx and apache instance then make an image form them to make two more with the same configuration

Amazon Machine Images (AMIs) (2) Info							
<div><div><div><div></div><div>Owned by me</div></div><div><div>Find AMI by attribute or tag</div></div></div><div><div>Refresh</div><div>Recycle Bin</div><div>EC2 Image Builder</div><div>Actions</div><div>Launch instance from AMI</div></div></div>							
<div><div>< 1 ></div><div>Settings</div></div>							
<input type="checkbox"/>	Name	AMI ID	AMI name	Source	Owner	Visibility	
<input type="checkbox"/>	-	ami-06a3d43df5d318d2d	nginx_image	699819973233/nginx_image	699819973233	Private	
<input type="checkbox"/>	-	ami-015f5036c88ad30d6	apache_image	699819973233/apache_image	699819973233	Private	

Nginx instances security group

sg-0c25eeef37d12cafa - launch-wizard-4							
<div><div>Details</div><div>Inbound rules</div><div>Outbound rules</div><div>Tags</div></div>							
<div><div>You can now check network connectivity with Reachability Analyzer</div><div>Run Reachability Analyzer</div></div>							
Inbound rules (2)							
<div><div>Filter security group rules</div><div>< 1 ></div><div>Settings</div></div>							
<input type="checkbox"/>	IP version	Type	Protocol	Port range	Source	Description	
<input type="checkbox"/>	-	HTTP	TCP	80	sg-01800d4202160aa...	-	
<input type="checkbox"/>	IPv4	SSH	TCP	22	0.0.0.0/0	-	

Apache instances security group

sg-01817815984cd4fd7 - launch-wizard-5							
<div><div>Details</div><div>Inbound rules</div><div>Outbound rules</div><div>Tags</div></div>							
<div><div>You can now check network connectivity with Reachability Analyzer</div><div>Run Reachability Analyzer</div></div>							
Inbound rules (2)							
<div><div>Filter security group rules</div><div>< 1 ></div><div>Settings</div></div>							
<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range	
<input type="checkbox"/>	-	sgr-0748be683aa2fdaa3	IPv4	HTTP	TCP	80	
<input type="checkbox"/>	-	sgr-0b4dd5895bcb9b...	IPv4	SSH	TCP	22	

Load balancers

Create Load Balancer

Actions

Filter by tags and attributes or search by keyword

1 to 2 of 2

<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Created /
<input type="checkbox"/>	apache	internal-apache-891100223....	Active	vpc-0c10190a1393214a9	us-east-1c, us-east-1d	application	June 9, 2020
<input checked="" type="checkbox"/>	nginx-LB	nginx-LB-1153115590.us-east-1.elb.amazonaws.com	Active	vpc-0c10190a1393214a9	us-east-1b, us-east-1a	application	June 9, 2020

Nginx public load balancer

Load balancer: nginx-LB

Description

Listeners

Monitoring

Integrated services

Tags

Basic Configuration

Name

nginx-LB

ARN

arn:aws:elasticloadbalancing:us-east-1:699819973233:loadbalancer/app/nginx-LB/5bbea8fff339629f

DNS name

nginx-LB-1153115590.us-east-1.elb.amazonaws.com
(A Record)

State

Active

Type

application

Scheme

internet-facing

Create target group

Actions

Filter by tags and attributes or search by keyword

1 to 2 of 2

Target group: nginx

Description

Targets

Health checks

Monitoring

Tags

The load balancer starts routing requests to a newly registered target as soon as the registration process completes and the target passes the initial health checks. If demand on your targets increases, you can register additional targets. If demand on your targets decreases, you can deregister targets.

Edit

Registered targets

Instance ID	Name	Port	Availability Zone	Status	Description
i-0fd81ad7dddf5c0e	nginx2	80	us-east-1b	healthy	This target is currently passing target group's health checks.
i-0ead9a65f46a7de81	nginx	80	us-east-1a	healthy	This target is currently passing target group's health checks.

Apache private load balancer

Load balancer: apache

Description

Listeners

Monitoring

Integrated services

Tags

Basic Configuration

Name

apache

ARN

arn:aws:elasticloadbalancing:us-east-1:699819973233:loadbalancer/app/apache/f949216f9b77dedb

DNS name

internal-apache-891100223.us-east-1.elb.amazonaws.com
(A Record)

State

Active

Type

application

Scheme

internal

Create target group

Actions

Filter by tags and attributes or search by keyword

<< 1 to 2 of 2 >>

<input type="checkbox"/>	Name	Port	Protocol	Target type	Load Balanc	VPC ID	Monitoring
<input checked="" type="checkbox"/>	apache	80	HTTP	instance	apache	vpc-0c10190a1393214a9	<input checked="" type="checkbox"/>

Target group: apache

Description

Targets

Health checks

Monitoring

Tags

The load balancer starts routing requests to a newly registered target as soon as the registration process completes and the target passes the initial health checks. If demand on your targets increases, you can register additional targets. If demand on your targets decreases, you can deregister targets.

Edit


Registered targets

Instance ID	Name	Port	Availability Zone	Status	Description
i-00784a9472fc861d5	web	80	us-east-1c	healthy	This target is currently passing target group's health checks.
i-0e0db527e49eaac49	web2	80	us-east-1d	healthy	This target is currently passing target group's health checks.

Accessing web server using public load balancer DNS

Not secure

nginx-lb-1153115590.us-east-1.elb.amazonaws.com



web1

Ubuntu


It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Not secure

nginx-lb-1153115590.us-east-1.elb.amazonaws.com



-----web2-----

Ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Creating template from apache AMI

EC2 > Launch templates

Launch templates (1/1) Info

Filter by tags or properties or search by keyword

Launch template ID	Launch template name	Default version	Latest version
lt-03112b38c12fb1515	apache_temp	1	1

apache_temp (lt-03112b38c12fb1515)

Launch template details

Launch template ID lt-03112b38c12fb1515	Launch template name apache_temp	Default version 1	Owner arn:aws:iam::69981997323:user/admin1
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Creating auto scaling group using the apache template and connect it to private load balancer

EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Search your Auto Scaling groups

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability
WEB-SERVER	apache_temp Version Default	2	-	2	1	3	us-east-...

Auto Scaling group: WEB-SERVER

Details | Activity | Automatic scaling | Instance management | Monitoring | Instance refresh

Group details

Auto Scaling group name WEB-SERVER	Desired capacity 2	Desired capacity type Units	Amazon Resource Name (ARN) arn:aws:autoscaling:us-east-1:69981997323:autoScalingGroup:b1a41981-61e9-4b2f-9cb5-f51452641211:autoScalingGroupName/WEB-SERVER
Date created Fri Jun 09 2023 04:09:45 GMT+0300 (Eastern European Summer Time)	Minimum capacity 1	Status -	
	Maximum capacity 3		

Auto Scaling group: WEB-SERVER

Details | Activity | Automatic scaling | Instance management | Monitoring | Instance refresh


Instances (2)

Filter instances

Instance ID	Lifecycle	Instance type	Weighted c...	Launch tem...	Availability ...	Health status	Protected fr...
i-0c17571b4fcb3537a	InService	t1.micro	-	apache_temp	us-east-1c	Healthy	
i-0ee664b0fc28fca11	InService	t1.micro	-	apache_temp	us-east-1d	Healthy	

Accessing web server using public load balancer DNS

Not secure | nginx-lb-1153115590.us-east-1.elb.amazonaws.com



Apache2 Default Page

Ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows: